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MINISTRY OF WATER AND ENVIRONMENT

# LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE

## HANDBOOK

2017

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A butterfly of Pentila genus

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# LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE

# HANDBOOK

2017

SUPPORTED BY

USAID
FROM THE AMERICAN PEOPLE

WETLANDS

NatureUganda

# ACKNOWLEDGEMENT

This handbook has been developed in a consultative and transparent process in which the views of all stakeholders were captured in order to ensure ownership of the plan and sustainability. It was made possible by different players who contributed based on expertise, experience, and interest.

Appreciation goes to all of those that made the process for this management plan a success. In this regard, we would like to thank the staff of the Ministry of Water and Environment, especially from the wetland management department, for their technical and policy guidance. Special tribute goes to Nature Uganda for leading the process and playing the role of the secretariat for the National Task Force.

The communities and respective local governments played a resourceful role in providing information and suggestions appropriate for the promotion of Lake Nabugabo wetland system Ramsar site.

Local Communities, Non-Governmental Organizations, central and local Government representatives also contributed to the development of the handbook. The handbook outlines investment opportunities aligned to the implementation of the managemet plan. It will be used as a guide to field activities, a resource for planning and reference booklet for public and general usage. The handbook should be used together with the management plan and the Conservation Investment Plan (CIP).

Last but not least, we want to thank PREPARED/USAID Project for providing technical support and the necessary financial resources, without which this handbook would not have been possible.

In view of the services and benefits that accrue from wetlands, everybody is called upon to support the conservation of Lake Nabugabo wetland system Ramsar site.



# FOREWORD

Lake Nabugabo wetlands system Ramsar site Handbook is a collation of information on the site with facts for quick and easy referencing. It is linked to Lake Nabugabo wetlands system Ramsar site Management Plan (2017- 2027) which was developed through a consultative process and is meant to guide planning of interventions by government and lead agencies, in particular the Ministry of Water and Environment, respective District Local Governments and other stakeholders as identified in the management plan. In addition, a Conservation Investment Plan (CIP) has been prepared for the Ramsar site. Targeted at potential donors and investors, the CIP offers a value proposition which outlines the economic returns to investing in biodiversity and ecosystem conservation in Lake Nabugabo wetland system Ramsar site.

The Handbook is arranged in five chapters covering different aspects of Lake Nabugabo wetlands system Ramsar site. Chapter one is introductory, that gives an overview of wetlands in Uganda including the importance of wetlands, location and uniqueness of the Lake Nabugabo wetlands System Ramsar site. The chapter also covers land use patterns, threats, criteria for designation, and physical characteristics of the site, economic value of biodiversity and ecosystem services provided by this Ramsar site. In addition, policy and institutional frameworks applicable to management of the site and conservation interventions are highlighted. Chapter two describes the different plants and animals of the Ramsar site. Chapter three highlights the people, culture and livelihoods. Chapter four provides information on tourism opportunities such as tourist sites and tourist activities and Chapter five outlines the investment opportunities in line with the Lake Nabugabo wetlands system management plan and the Lake Nabugabo wetland system Ramsar site CIP.

This Handbook can be used as a guide for field activities, a resource for planning purposes or as a referencing material for public or general usage. For more detailed information reference can be made to the management Plan, the CIP, and other extensive scientific literature available on Lake Nabugabo areas. It is hoped that this Hand book will go a long way in filling the information gap and can therefore be used to inform policy and action planning for better management of the Ramsar site.

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**Alfred Okot Okidi**
**Permanent Secretary**
Ministry of Water and Environment

# LIST OF ACRONYMS

| | |
|---|---|
| CIP | Conservation Investment Plan |
| EAC | East African Community |
| IMC | Inter-Ministerial Committee |
| IUCN | International Union for Conservation of Nature |
| LVB | Lake Victoria Basin |
| NWAG | National Wetlands Advisory Group |
| PREPARED | Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNMA | Uganda National Meteorological Authority |
| USAID | United States Agency for International Development |
| UTB | Uganda Tourism Board |
| UWA | Uganda Wildlife Authority |



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# PART ONE;
## STATE OF LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE



# Chapter One: Introduction

## 1.1 Wetlands in Uganda

Wetlands, commonly known as swamps in Uganda, refer to areas where plants and animals have become adapted to temporary or permanent flooding by saline, brackish or fresh water.
Wetlands include permanently flooded areas with sedge or grass swamp, swamp forest or high altitude mountain bog, as well as seasonal flood plains and depressions without flow. All wetlands are characterized by impeded drainage, but vary in detail depending on the duration of flooding, depth of water, altitude, fertility of the surrounding soil and other environmental factors. They are nevertheless all characterized by having distinctive plants and animals which are adapted to flooding. According to the Uganda Wetlands policy 1995, wetlands occupy between 10- 13 percent of Uganda's national territory. Wetlands are therefore one of the most prominent land cover types in Uganda.

### *Ramsar Convention definition of wetlands:*

*"Wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres" (Article 1.1).*

Three basic characteristics are used to describe and characterize wetlands. These include: the permanence and seasonality of their moisture regime, the main vegetation and land cover types, and the resource pressure from human use. About 75 percent of Uganda's wetlands are seasonal, meaning they are not flooded for part of the year. Large seasonal wetlands are located in various extensive floodplains, such as parts of Katakwi, Nakapiripirit, and Moroto Districts (northeastern Uganda); at the southern end of Lake Albert in Bundibugyo District; and Rakai District in areas bordering Tanzania. Permanent wetlands are mostly located near open water bodies such as lakes and rivers. The largest permanent wetlands are directly connected to Lake Kyoga, River Katonga and Lake Victoria. Others wetlands areas follow the banks and catchment areas of rivers including Nile River from Lake Albert to the Sudanese border.

### Importance of wetlands

Wetlands in Uganda have traditionally been utilized as a source of materials for construction, crafts, furniture, and food (hunting and fishing). In addition, seasonal wetlands and margins of permanent wetlands have been used for grazing cattle, growing crops and as a source for domestic water. Furthermore, wetlands are a major habitat for wildlife.
In line with the Millennium Ecosystem Assessment (Assessment, M.E, 2005) , the importance of wetlands can be summarized as in the table below:



**Table showing a Summary of Ecosystem services of wetlands**

| Services | Comments and Examples |
|---|---|
| **Provisioning** | |
| Food | Production of fish, wild game, fruits, and grains |
| Fresh water | Storage and retention of water for domestic, industrial, and agricultural use |
| Fiber and fuel | Production of logs, fuel wood, peat, & fodder |
| Biochemical | Extraction of medicines and other materials from biota |
| Genetic materials | Genes for resistance to plant pathogens, ornamental species, and so on |
| **Regulating** | |
| Climate regulation | Source of and sink for greenhouse gases; influence local and regional temperature, precipitation, and other climatic processes |
| Water regulation (hydrological flows) | Groundwater recharge/discharge |
| Water purification and waste treatment | Retention, recovery, and removal of excess nutrients and other pollutants |
| Erosion regulation | Retention of soils and sediments |
| Natural hazard regulation | Flood control, storm protection |
| Pollination | Habitat for pollinators |
| **Cultural** | |
| Spiritual and inspirational | Source of inspiration; many religions attach spiritual and religious values to aspects of wetland ecosystems |
| Recreational | Opportunities for recreational activities |
| Aesthetic | Many people find beauty or aesthetic value in aspects of wetland ecosystems |
| Educational | Opportunities for formal and informal education and training |
| **Supporting** | |
| Soil formation | Sediment retention and accumulation of organic matter |
| Nutrient cycling | Storage, recycling, processing, and acquisition of nutrients |

*Adopted from: Millennium Ecosystem Assessment, 2005.Ecosystems and human well-being: wetlands and water synthesis. World Resources Institute, Washington, DC.*

## 1.2. Description of Lake Nabugabo wetland system Ramsar site

### 1.2.1. Introduction

The Ramsar site has an extensive wetland system that is interconnected with Lake Victoria, the satellite lakes, the Lwera flood plain and the lower catchment of River Katonga. It is an extensive system with an area of 77,700 hectares. The wetland and associated floodplains straddle across parts of Masaka, Kalungu, Mpigi, Butambala and Gomba Districts. The wetland system has characteristic flora, fauna and soils that make the Ramsar site one of the most significant biodiversity rich areas in Lake Vitoria basin.

### 1.2.2 Location of Lake Nabugabo wetland system Ramsar site

The Lake Nabugabo wetland system is located in central Region of Uganda at geographical co-ordinates 00 7'29"N 320 6' 35"E, 0010' 1"N 310 54' 29"E and 00 2' 39"N, 310 38' 13"E, 00 30' 9"S 310 49' 48"E. The area is at an average altitude of 1,136 metres above sea level, to the western edge of Lake Victoria. Lake Nabugabo and associated satellite lakes of Kayugi, Manywa and Kayanja/Birinzi are located in Masaka District. The wetlands around these lakes are further connected to the wetlands in the Districts of Masaka, Kalungu, Mpigi, Gomba and Butambala.



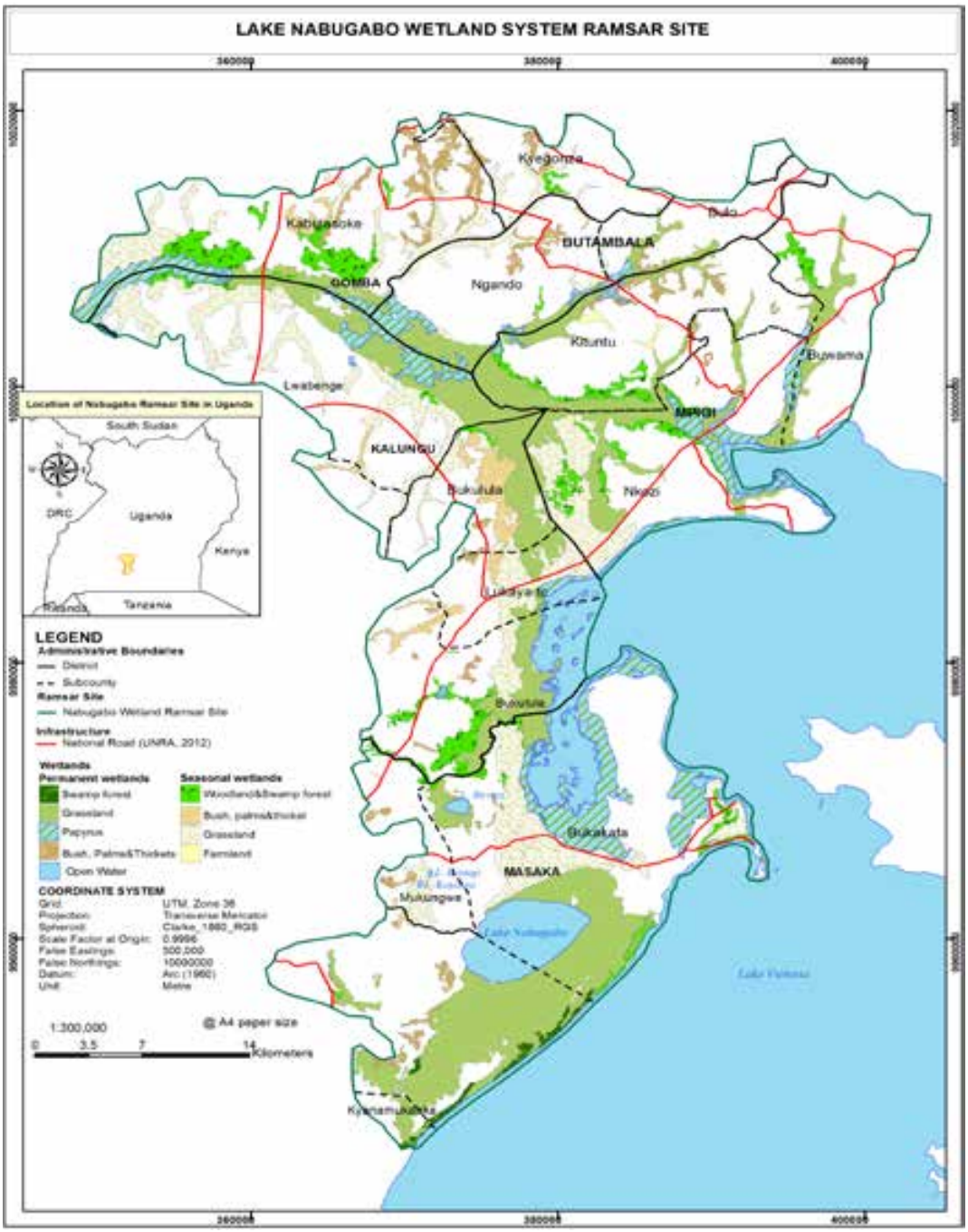



*Figure 1: Location of Lake Nabugabo wetland system Ramsar site*

### 1.2.3 Land use

Land use around Lake Nabugabo and its surrounding wetlands including the smaller lakes consists mainly of activities such as hunting, settlement, fishing, cattle grazing, natural resource extraction (herbs, grass, sand, clay, firewood, poles, fish, water etc.), cultural heritage (shrines), small scale cultivation, places of worship and social infrastructure (roads, physical institutions etc.). In the past, these activities sustained people's livelihoods without significantly affecting the ecological systems in the area. However, this has slowly changed with population increase and the accompanying demand for natural resources and food coupled with advanced technologies. Consequently, large investments have been established in the area like commercial farms, construction of leisure facilities at beaches, and huge extractions of wetland resources (sand, clay). These investments have boosted the economic status of the area but at the same time may have potential negative environment impacts and should therefore be monitored closely.



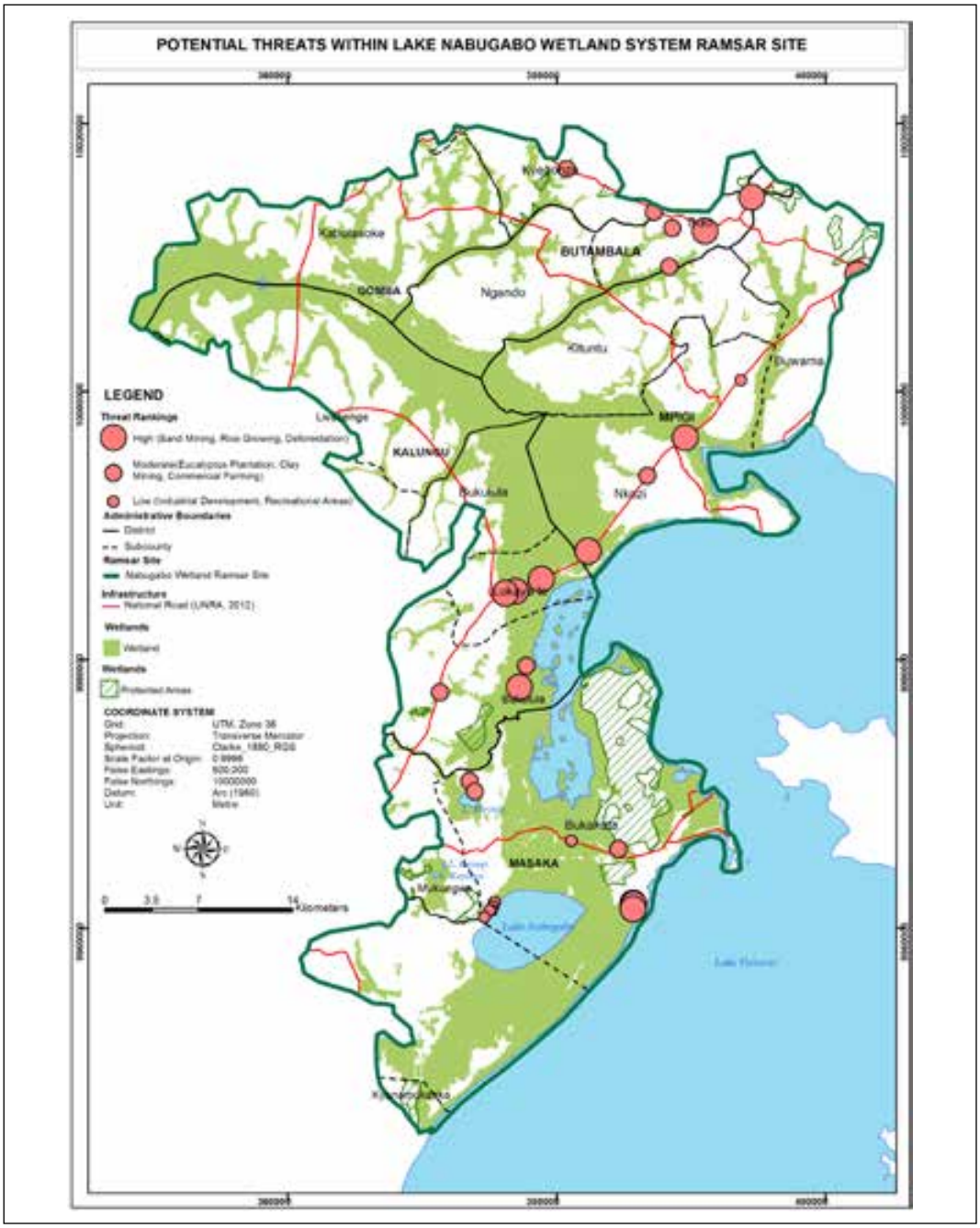

*Rice farm and factory in lwera wetland*



*factory that makes bricks and tiles from clay collected form the wetlands*

### 1.2.4 Threats in Nabugabo

The Lake Nabugabo wetlands cover a very large area which is easily accessible. Due to multiple land use practices, they are being degraded through a number of ways such as ; overfishing, unregulated harvesting of grass and papyrus, commercial sand and clay extraction, illegal hunting, construction of large drainage channels, dumping of murram and other solid wastes, use of agrochemicals, and clearing of natural forests for agriculture.



## 1.3.0 Uniqueness of Lake Nabugabo wetland system Ramsar site.

Lake Nabugabo Wetland system has been described as unique based on the following:
The Satellite lakes: There are four satellite lakes in the basin including Nabugabo, Manywa, Kayugi and Birinzi. The communities around these lakes have cultural attachments and beliefs about them. For instance, women are not allowed to fish in the lakes. There are also several shrines along the shores of the lakes where cultural groups pay homage.

### The Satellite lakes:

There are four satellite lakes in the same basin including Nabugabo, Manywa, Kayugi and Birinzi. The communities around these lakes have cultural attachments and beliefs about these lakes. For instance women are not allowed to fish in these lake. There are also several shrines along the shores of these lakes where cultural groups pay homage.



*An arial view of the four satelite lakes*

### Formation of Lake Nabugabo:

Lake Nabugabo is separated from Lake Victoria by a sand bar 1.2 to 3km wide. It is said that Nabugabo was first isolated from Lake Victoria 5000 years ago. The lake apparently shrank significantly around 2600 and 2000 during century-scale droughts, but it did not dry out at any point in its history. The inferred lake-level history of Nabugabo is generally consistent with Holocene paleoclimate records from the adjacent Lake Victoria Basin, and suggests that living organisms in this lake were subjected to at least two major environmental changes during the last five millennia.

There are three possible causes that are cited for the formation of the Nabugabo lakes (Bergmans, 1988, Hamilton, 1992 and Kingdon, 1990):

a. The wave action of the effective width of Lake Victoria coupled with droughts of the Holocene period and the drying of the flora and fauna in the area occupied by the satellite lakes.
b. Tectonic movements which changed the landscape of Uganda in general causing rivers which were flowing to the west being diverted to the eastern trough of a water body (now Lake Victoria) resulting in floods and the bursting of banks at Jinja to form the Nile.

c. Prehistoric and present evidence points to the fact that the Nabugabo lakes are the remnants of a once bigger lake whose level was higher than Nabugabo. The Nabugabo catchment has a high species diversity some of which exist as terrestrial plants elsewhere confined to moist cool highlands such as Lycopodium sp and some species of mosses.

## Naturalness:

Currently, areas around the Lake Nabugabo wetland system Ramsar site are still pristine in nature and this is evident when viewed from the hill tops of Masaka Municipality. This state has contributed to the increasing value of the area for eco-tourism. Naturalness is a situation where an ecosystem is not disturbed and is intact with limited human modifications and can be measured in terms of biodiversity (Anderson, 1991).



*Some of the intact vegetation around nabugabo*

## Rarity:

One key aspect of rarity of the Lake Nabugabo ecosystem is its fragile hydrology since there is no visible surface out-flows of the water that enters the area through small streams and run-off. The only seepage appears to be through the narrow sand bar to the main Lake Victoria. Therefore, any process that can affect the seepage is likely to disrupt the hydrology of the Nabugabo system (Chapman, et al, 2003). Studies on biodiversity conducted by Ministry of Water and Environment (2016) indicate that some developers have constructed long drainage channels near the sand bar and this is likely to disrupt the hydrology of the area. Another aspect of rareness is the presence of unique biodiversity such insectivorous plants adapted to the prevailing water and soil conditions at the Ramsar site. In Uganda, the biggest population of the Sundew, Drosera madagascariensis (one of the unique insectivorous plants) is found at Nabugabo area and Heteranthoecia guineensis is endemic to the area. Another plant, Drosera burkeanais is only known to occur around Lake Nabugabo in Uganda



*In Uganda, the biggest population of the Sundew, Drosera madagascariensis, is found at Nabugabo. Drosera burkeanais in Uganda is only known to occur around L. Nabugabo.*



*In Uganda, the grass Heteranthoecia guineensis, is known only from the Lake Nabugabo area.*

## Fragility:

Wetland systems depend on the availability of water with flora and fauna characteristic of wet conditions. Anything that interferes with water flow such as creation of drainage channels and clearing of vegetation cover affects the ecological integrity. Since soils in Nabugabo are sandy and porous, they can easily lose water. Lake Nabugabo wetland system is extensive and is interconnected with Lake Victoria with a large population and multiple land use practices (Chapman et al, 2003) whose actions can easily affect its integrity.

## Typicalness:

The aspect of typicalness (uniqueness) is that Lake Nabugabo and the satellite lakes have clean water free of the bilharzia vector snails, unlike Lake Victoria and other lakes in the country. This makes these lakes suitable for swimming and other aquatic sport. Any activities that would alter this situation to favourr the survival of bilharzia vectors will compromise the recreational value of Nabugabo waters. Studies indicate that Lake Nabugabo water has low microbial contamination levels and that physico-chemical parameters are within permissible levels of recreational water quality standards (Ogutu Ohwayo, 2002; Nakirya et al 2015).

## Refugia (habitat) for cichlid fish:

In Lake Nabugabo, approximately 50% of the indigenous fish species disappeared from the open waters subsequent to establishment of the introduced predatory Nile perch (Lates niloticus). However, several of these species persisted in wetland refugia at the edges of the lake. Over the past decade, Nile perch in Lake Nabugabo have been intensively fished. Studies indicate that by 1995, haplochromine cichlids were largely confined to inshore areas, particularly wetland ecotones, and were rare in Nile perch stomachs, as were most other indigenous species. By 2000, haplochromine cichlids were abundant in inshore and offshore areas of both exposed and wetland transects. Several indigenous non-cichlids also reappeared in the main lake, including three of the four original mormyrid species. Between 1995 and 1999, there was a dramatic increase in the proportion of haplochromines in the diet of Nile perch. When haplochromines were rare (1995), Nile perch switched from an invertebrate-dominated diet to piscivory at a large size (30 cm total length). In 2000, however, Nile perch were strongly piscivorous by 5–10 cm total length. The pattern of faunal loss and recovery in Lake Nabugabo demonstrates the importance of refugia in providing the seeds of resurgence and provides a model with which to understand some changes in Lake Victoria (Chapman et al, 2005).



*Progranathochromis venator*



*Haplochromis(Astatoreochromis) alluaudii*

### Aesthetic value:

The Lake Nabugabo wetland system Ramsar site has good scenic beauty, especially when viewed from the Kako hills or Bwala area. From these hills, Lake Victoria can be clearly viewed and the observer appreciates the reality that the four satellite lakes were part of an originally larger lake. The scenery is more exciting at the shores, where one can view the variety of shorelines which include the forested sections, clear sandy beaches and sedge fringed shores.



*A forested shore along lake NABUGABO*

## 1.4 DESIGNATION OF LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE

Ramsar sites are wetlands of international importance and Lake Nabugabo wetland system Ramsar site is one of the twelve Ramsar sites in Uganda. The others are Lake George, Lake Mburo-Nakivali wetland system, Lake Bisina wetland system, Lake Nakuwa wetland system, Lake Opeta wetland system, Lutembe Bay, Mabamba Bay wetland system, Murchison Falls-Albert Delta wetland system, Nabajjuzi wetland system, Sango Bay-Musambwa Island-Kagera wetland system, Ruwenzori Mountain National Park Ramsar sites. The international convention which forms the basis for their identification is the “Ramsar Convention” named after the city in Iran where the convention was signed in 1971 and Uganda is a signatory. There are clear criteria for listing wetlands of international importance. Based on these criteria, Lake Nabugabo wetland system was listed and accepted as a Ramsar site in 2004. The gazetted area was estimated at 22,000 hectares in the District of Masaka.

The justification for its listing in line with the Ramsar criteria included among others; its unusual evolutionary history of water quality and satellites to Lake Victoria; presence of rare and endangered species of fish and threatened bird species; as well as populations of plant and animal species important for maintaining the biological diversity of the region. Nabugabo wetland system supports plant and animal species at a critical stage in their life cycles, and also provides refuge during adverse conditions

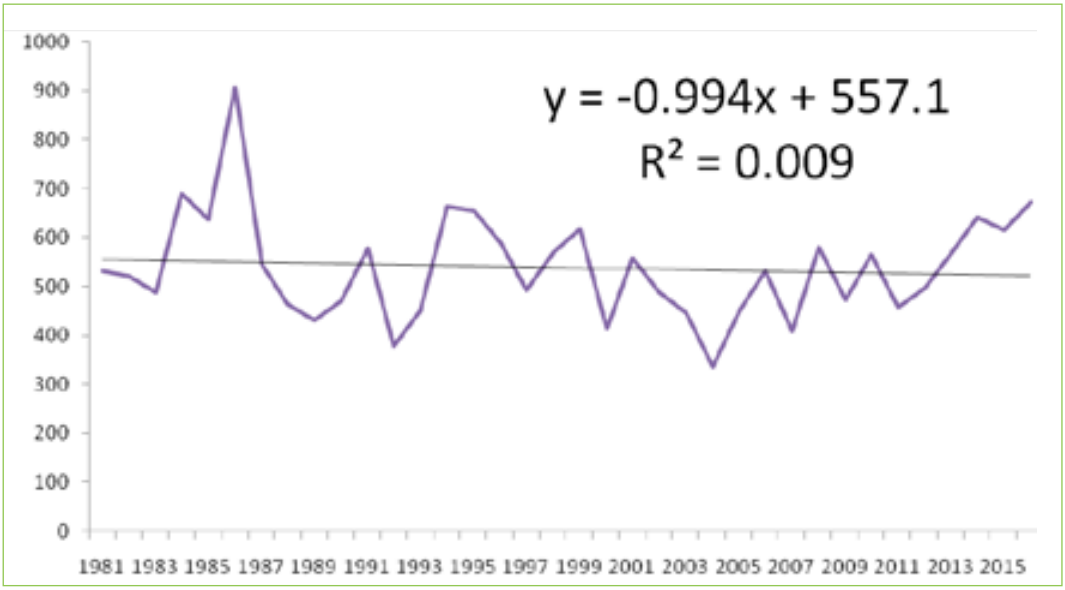
especially dry season. It also supports an assemblage of breeding water birds and provides a habitat for large populations of non-breeding water birds. The wetland is not only a source of food for fish but forms spawning ground and migration path for resident fish and other species. Management of the Ramsar site is in the jurisdiction of Masaka District Local Government but plans are under way to extend the boundaries to include some wetlands in Kalungu, Mpigi, Gomba, and Butambala, hence the size of the Ramsar site will increases from 22,000 hectares to 77,700 hectares. Responsibility will then extend to other districts as well.

The proposal for the expansion of Lake Nabugabo wetland system Ramsar site was guided by careful evaluation of a number of factors namely: the rich biodiversity and the variety of ecosystem services. These include flood alleviation, ground water recharge, and water quality improvement. The Nabugabo wetland system Ramsar site currently is a source of products for subsistence and income for a large proportion of more than 190,000 people that live in and around the site. Unregulated resource harvesting, infrastructure development, inadequate enforcement of laws, invasive species, and poor agricultural practices are key threats to the ecosystem services provided by Nabugabo wetlands; and Article 2.1 of the Ramsar Convention provides for the incorporation of riparian zones adjacent to the wetlands in order to improve their integrity.

## 1.5 PHYSICAL CHARACTERISTICS OF LAKE NABUGABO WETLAND SYSTEM RAMSAR SITES

### Rainfall

The rainfall pattern is bimodal having two seasons with dry spells between July and August, and January to March. The annual average rainfall received is between 1100mm - 1200mm with 100 - 110 rainy days. Trend analysis by Uganda National Meteorological Authority (UNMA), for the long rains of March to May based on 35 years (1981-2016) show no major fluctuation apart from an increasing trend in the last 4 years (2012-2016).



### Temperature

The average maximum temperature does not exceed 30°C and the minimum does not fall below 10°C, with almost equal length of day and night throughout the year while relative humidity is generally low with the exception of lakeshore areas where it tends to rise, (UNMA, 2016).

### Hydrology

The movement and distribution of water is influenced by Lake Victoria, Lake Nabugabo and the satellite lakes of (Kayanja, Birinzi and Kayugi), Lwera flood plain and River Katonga. These subsystems are ecologically interconnected either through surface water seepage where water can be seen above ground. The flow of water within the satellite lakes and to Lake Victoria can also occur through underground seepage where water cannot be seen above ground surface.

### Geology

Central Uganda, where Lake Nabugabo wetlands and Ramsar site is located has a basement complex that is predominantly of granitic metamorphic rocks of the Archaean shield. The predominant controls on the formation of the LVB are tectonic uplift with associated rifting around the margins, and intersection among a series of North West-trending strike-slip faults which transect the region. In some areas, the rocks are metamorphosed to a higher degree forming clay and sand through weathering processes (Rach, 1992).

### Topography

The landscape is characterized by hills with flap tops and u-shaped valleys that vary in width depending on the landscape and geomorphology. While the valleys away from Lake Victoria shores and Lake Nabugabo are narrow, those towards the lakes are broader and flat with extensive wetlands with varied vegetation like grassland of scattered shrubs, swamp forests with tall trees, papyrus, Miscanthidium, and Vossia

### Soils

The soils in the area are variable in type depending on the parent rock, climatic conditions and land use activities. Soil mapping reports show that the soils were developed from remnants of old lacustrine deposits. The top soils consist of traces of humus merging into yellow brown or brown sandy loam or loamy sands to the depth of 3 to 5 ft. The soils are underlaid by rounded quartz pebbles and some places with a layer of Murram and massive laterite (National Agricultural Research Organisation, 2015).

### Vegetation types

The vegetation on the shores of Lake Nabugabo is dominated by Miscanthidium; Vossia and Sphagnum swamps are also present. Papyrus, although present is not dominant in the swamps surrounding Lake Nabugabo. There is a forest along the northwestern shore and sandy beaches along the windward, eastern shoreline. There are also extensive grasslands with scattered shrubs on flood plains of Mazigo, Lwera and Bukakata. The thick natural forests along the shores of the lakes are important in filtering the water that enters the lake but also shelter fish breeding grounds.



*Patches of shrubs with short grass*

## 1.6 Value of ecosystem services

A study conducted by the Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development (PREPARED) project in 2014 estimated the value of ecosystem services provided by the original Nabugabo Ramsar Site as USD $4,558,000 a year, which is an average of USD $333 per ha of wetland habitat per year. The value of the extended Ramsar site was estimated at more than USD $44,010,000 million (90% increase) or USD $566 per ha per year. The assessment valued a total of 11 ecosystem services, which fell into three major categories --provisioning, regulating and supporting, and cultural services. In line with Ramsar principles, the study focused on values accruing from the wise use of wetland resources. The values of the services valued are summarized in Table 2 below.

**Table 2: Baseline value of wetland ecosystem services in the extended Ramsar site as compared to the original Ramser site boundaries**

| Ecosystem service | Original Ramsar Site | Extension Area | Total extended Ramsar Site | Average habitat value |
|---|---|---|---|---|
| | USD per year | | | USD ha per year |
| **Provisioning services** | | | | |
| Capture fishery | $ 200,000 | $ 10,250,000 | $ 10,450,000 | $ 383 |
| Wood-based energy & timber | $ 540,000 | $ 2,780,000 | $ 3,310,000 | $ 253 |
| Non-wood/non-fish wetland products | $ 820,000 | $ 5,200,000 | $ 6,020,000 | $ 78 |
| Support to livestock production | $ 170,000 | $ 1,860,000 | $ 2,040,000 | $ 38 |
| **Regulating and supporting services** | | | | |
| Soil fertility & moisture | - | $ 80,000 | $ 80,000 | $ 443 |
| Pollination, seed dispersal & pest control | $ 410,000 | $ 1,910,000 | $ 2,320,000 | $ 111 |
| Water storage & recharge | $ 760,000 | $ 9,150,000 | $ 9,910,000 | $ 2,313 |
| Regulation of water quality | $ 540,000 | $ 4,840,000 | $ 5,380,000 | $ 1,256 |
| Flood attenuation | $ 70,000 | $ 630,000 | $ 70,000 | $ 164 |
| Carbon storage & sequestration | $ 250,000 | $ 2,770,000 | $ 3,010,000 | $ 39 |
| **Cultural services** | | | | |
| Nature-based tourism | $ 800,000 | - | $ 80,000 | $ 221 |
| **Total** | **$ 4,550,000** | **$ 39,460,000** | **$ 44,010,000** | **$ 566** |

*Source: Republic of Uganda, 2015*

## 1.7 Policy, legal and institutional framework

Although wetland conservation and management is a shared responsibility for all Ugandans, the government has a leading role to ensure sustainable management by putting in place enabling policies and regulations. In addition, the government has an international responsibility to conserve wetlands and sustainably utilize them under the Ramsar Convention on Wetlands of International Importance, for which Uganda is a signatory and contracting partner. Therefore, the government has put in place legal and policy frameworks to sustainably manage wetlands and other natural resources in line with international and regional obligations as outlined below.

### International and Regional policy frameworks include:

The Ramsar Convention (1971); The sustainable development goals (2016-2030); The Convention on Biological Diversity (1992); The Convention on Migratory Species (1979); Convention on International Trade in Endangered Species of wild Fauna and Flora (1973); World Heritage Convention (1972); United Nations Convention to Combat Desertification (1994); United Nations Framework Convention on Climate Change - UNFCCC (1992); Kyoto protocol to UNFCCC (1997); the East African Community (EAC) Treaty (1999); EAC Protocol for sustainable development of LVB (2003); EAC Protocol on Environment and Natural Resource Management (1999).

### National Policy and legal frame work:

There are a number of policies and laws on wetland management and some of the most important include: Vision 2040; The National Development Plan II (2016-2021); National Policy for the Conservation and Management of Wetland Resources, 1995; Wetland Sector Strategic Plan (2011-2020); Climate Change Policy, 2015; The National Environment Management Policy, 1994; The National Fisheries Policy, 2004; The National Water Policy, 1999; National Agriculture Policy, 2013; Land Policy, 2014; National Soils Policy for Uganda, 2000; The National Land Use Policy, 2007; The Uganda Organic Agriculture Policy, 2009; The Uganda Wildlife Policy, 2014; The Forest Policy, 2008; Mineral and Mining Policy, 2000; Occupational Health and Safety Policy, 2004; Constitution of the Republic of Uganda, 1995; National Environment Act, 1995; Land Act, 1998; Local Government Act, 1997; The Agricultural Chemicals (Control) Act, 2006; The National Planning Authority Act, 2002; The Uganda Wildlife Act Cap 200, 2000; The National Forestry and Tree Planting Act, 2003; Water Act, 1997; and the National Environment (Wetlands, River Banks & Lake Shores Management) Regulations, 2000.

### Institutional Framework:

Institutions facilitate implementation of Government policies and enforcement of laws governing wetlands. The major institutions include: The Ministry of Water and Environment which is the line ministry for the management of wetlands with the Wetlands Management Department as the technical wing. The National Wetlands Advisory Group (NWAG) which was created in 1989 by the government as an Inter-Ministerial Committee (IMC), with representatives from some non governmental organizations and academic institutions to oversee the formulation of the National Wetlands Policy (NWP 2005). The IMC evolved into the NWAG in 2004, which now serves as the country's National Ramsar Committee and includes a broader representation of stakeholders from civil society organizations.

In line with the Local Government Act (1997), the respective Local Governments are directly in charge of wetlands in their areas of jurisdiction and in the case of Lake Nabugabo wetlands system Ramsar site, the District Local Governments of Masaka, Kalungu, Mpigi, Gomba and Butambala are responsible. At the community level, there is a Ramsar Committee that oversees the day to day management of the Ramsar site. This committee gets technical support from the respective Local Governments.

## 1.8. Conservation measures

### 1.8.1 Introduction

The Government has put in place policy and legal frame work for conservation of wetlands. In addition, there are management tools in place to facilitate management of Lake Nabugabo Wetlands system Ramsar site in which case a number of interventions have been carried out.

### 1.8.2 Routine activities

Awareness raising:

The district local Government of Masaka together with the Ministry of Water and Environment especially the Wetlands Management Department have been carrying out sensitization activities to raise awareness on the importance of wetlands and how best they can be utilized without compromising their potential to support livelihoods of future generations.

Law enforcement:

The Government has recruited environment/wetlands officers to ensure compliance with the policy frame work. These officers were strengthened by recruiting Environment Protection Police to ensure that wetlands are not degraded.

Restoration of degraded areas:

The District Local Governments of Masaka, Kalungu, Mpigi, Gomba and Butamabala have made attempts to restore degraded areas through involving the parliament like in the case of Lwera where the parliamentary committee was petitioned by Mpigi and Kalungu Districts.

### 1.8.3. Resource centre and crafts house

The community in collaboration with the wetlands department and Masaka District Local Government earmarked land for the construction of a facility to serve as a resource and crafts centre.

### 1.8.4 Lake Nabugabo wetland system Ramsar site Management plan

A ten year management plan for the years 2017/28 - 2026/27 has been formulated in line with the Wetland Sector Strategic Plan 2017-2022 and Ramsar Convention. The management plan gave way to the formulation of the Lake Nabugabo wetland system Ramsar site Conservation Investment Plan (CIP). Targeted at potential donors and investors, the CIP offers a value proposition which outlines the economic returns to investing in biodiversity and ecosystem conservation in Lake Nabugabo wetland system Ramsar site.

### 1.8.5 Research studies

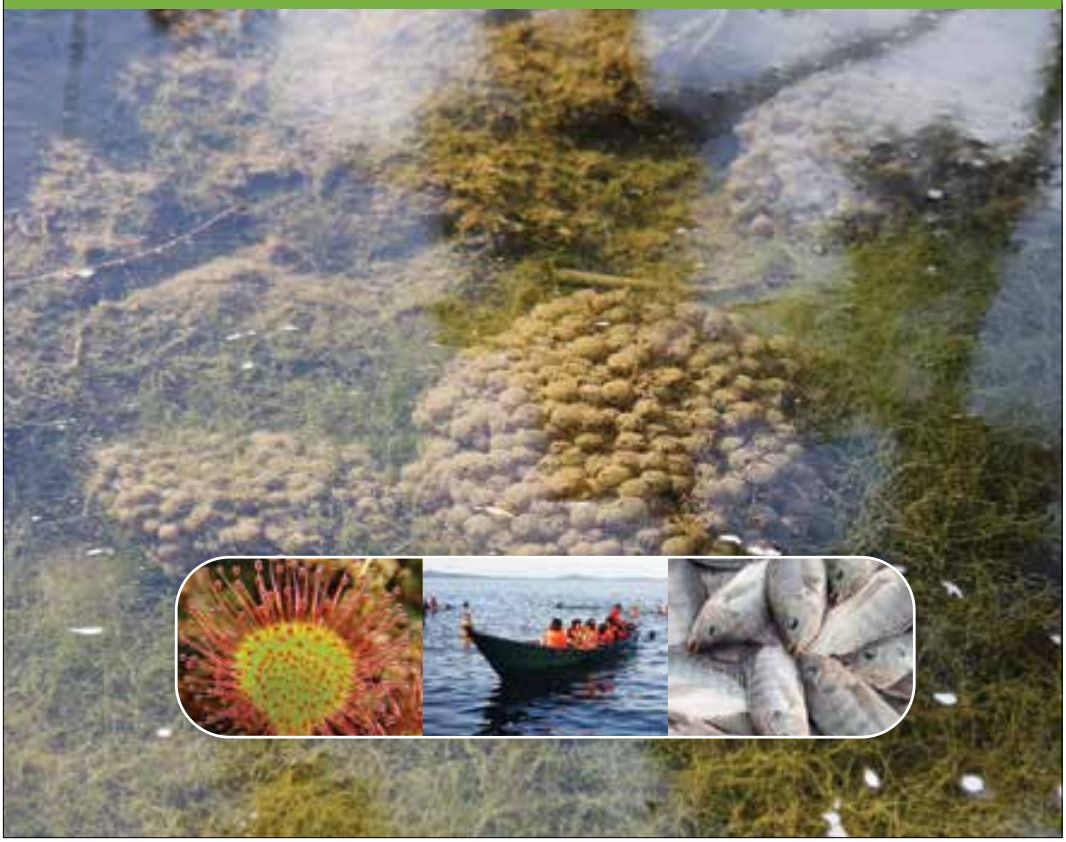
In order to foster evidence based planning, a number of studies to enrich the scientific knowledge base of Nabugabo have been undertaken. The findings of some of the studies have been compiled in a report by; Busulwa H, Mafabi P.G & L.M.Ndawula (2005). Other studies have been undertaken by Kalema et al., (2016); Alfred van Geest & Peter Coesel, (2006), Nakirya D, Okot-Okumu J and Muyodi J (2015) and Chapman et al (2003).

THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND ENVIRONMENT

# THE LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE MANAGEMENT PLAN

( 2017 - 2027 )



# CHAPTER TWO:
# PLANTS AND ANIMALS IN LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE

## 2.1. INTRODUCTION

Nabugabo Ramsar Site is a biologically significant area in the LVB as identified by the ecosystem profile assessment undertaken by PREPARED Project in 2014. Nabugabo supports specific biodiversity, comprising rare and threatened plants and animals species, including internationally important bird populations, a range of mammals, invertebrates, reptiles and cichlid fish (Busulwa H, Mafabi P.G & L.M.Ndawula 2005; USAID, 2015). The wetland biodiversity inventory report of the Lake Nabugabo wetland system indicate a high biodiversity ranking based on plants, insects, birds and fish. The Ramsar site boasts of 300 plant species, 14 species of which are not found anywhere else within Uganda and two flowering plants endemic to the site. The most striking character of the rare Nabugabo plants is the relative dominance of carnivorous plants. It is home to 281 bird species, including 15% of the world's population of the Blue Swallow and five globally threatened and nearly threatened species. Indigenous fish, particularly of the family Cichlidae have been recorded; three other species were introduced into the lake in the 1950s, namely Oreochromis niloticus, O. leucosticus and Tilapia zillii. Significant in the wide variety of key animal communities is Hippopotamus and Sitatunga.

## 2.2. FISH

There are nine species of fish from the family Cichlidae that have been recorded from these lakes, including five endemic species of Haplochromis. There are three introduced cichlid species in addition to the Nile perch Lates niloticus which was introduced to Lake Nabugabo in the early sixties (Busulwa H, Mafabi P.G & L.M.Ndawula, 2005). Some of the important fish that are found in Lake Nabugabo include the following.



*Haplochromis (Yssichromis) pyrrhocephalus*



*Haplochromis (Paralabidochromis) crassilabris*





## 2.3. CARNIVOROUS PLANTS

Carnivorous plants are unique types of plants that trap and ingest small animals especially insects as a means of supplementing their nutrient supply. Available records show that carnivorous plants in Uganda have been collected since 1941. Places that harbor them are either damp or open water bodies. A total of 23 species of carnivorous plants distributed in two families are known from Uganda. The Nabugabo region has 13 (56.5 %) of the 23 Ugandan species of carnivorous plants (Namaganda, 2005), and 2.2% of the world's carnivorous plant diversity. The Nabugabo area and the north-western shores of L. Kayanja are the most important for conservation of carnivorous plants in Uganda (Kalema et al. 2016).



*The water wheel, Aldrovandavesiculosa, is an aquatic plant that is both nationally and globally endangered. It is found in a few areas in Uganda, and at Bulingo and L.Kayanja within the Nabugabo Ramsar site.*



*Syngonanthus wahlbergii is onlyknown from the Lake Nabugabo Ramsar site and Entebbe in Uganda.*

## 2.4 MAMMALS

### 2.4.1 Sitatunga

The Sitatunga (Tragelaphus spekii) or marsh buck is a swamp-dwelling antelope found throughout central Africa, centering on the Democratic Republic of the Congo, Cameroon, parts of Southern Sudan, Ghana, Botswana, Zambia, Gabon, Tanzania, Uganda and Kenya. Sitatungas are slow swimmers, but they can paddle for miles. The Sitatunga is dominant in the wetlands of Nabugabo. It is hunted by the local communities for meat and skin. However, uncontrolled hunting may lead to its extinction. Conservation actions are therefore needed to protect Sitatunga.



### 2.4.2 Monkeys

Lake Nabugabo is also home to the Vervet monkeys (Chlorocebus aethiops)





### 2.4.3 Small Mammals

Lake Nabugabo Ramsar site has a total of more than thirty-one species of small mammals. This record shows higher species richness when compared to similar habitat forms adjoining the Lake Nabugabo area. Many more species of fairly large mammals, shrews and rodents including the habitat specific species; Pelomys hopkinsi, Dasymys incomtus and Otomys tropicalis were recorded in the greater Nabugabo (Behangana, Kityo and Mafabi, 2005).

### 2.4.4 Bats

Nabugabo area also has a series of caves that provide refuge for bats both micro and mega chiropteran. For instance, Najugura cave with a length of 36m (372135E, 9957382S) hosts a large number of Horseshoe bats Rhinolophinae.



*Horseshoe bats (Hipposideros sp) inside Najugura cave*

## 2.5 INSECTS

There are thousands of insects within Nabugabo Ramsar site and not all of them have been assessed. For instance, there are about 600 species of butterflies which have been locally assessed (and almost 700 more species remain to be assessed). Nabugabo is also home to a number of dragon flies such as the Agriocnemis palaeforma, a near threatened species in Uganda according to the International Union for Conservation of Nature (IUCN) red-list 2017.



*Agriocnemis palaeforma (Ugandan endemic)*



*Majority of the butterfly species recorded have not been evaluated globally according to IUCN Red List.*



## 2.6 .BIRDS

The Nabugabo Ramsar site was identified as an important bird area owing to its role in the conservation of birds especially the globally threatened species and biome-restricted species like; the Blue Swallow, Shoebill and Papyrus Canary respectively (Byaruhanda et ar 2001). It consists of a great variety of habitats ranging from open lakes (Lake Nabugabo and the Satellite lakes) to rivers, wetlands, small forests, grasslands and swamps and all them providing suitable habitats to a diversity of bird species (259 species as seen from the Biodiversity survey in November, 2016).

The Nabugabo grasslands provide suitable feeding grounds for the Blue Swallow (a globally threatened species and Intra-African migrant). The Blue Swallow breeds in South Africa and migrates to Uganda during the period of May-September. A survey carried out in Uganda in July-August 2001 estimated 550 individuals of Blue Swallow (36.6% of the total global population) and Nabugabo had the highest number of Blue Swallow at 40% (215) thus making it the most important site for the conservation of the Blue swallows. Lake Nabugabo is home to seven of the 12 Lake Victoria biome species including the rare Papyrus Canary (sighted in the papyrus during the survey in November, 2016). Within the papyrus on Lake Kayugi is another rare species to see, the globally threatened Papyrus Gonolek. Here one has the best chance to see and photograph this rare and beautiful bird. A walk through the forested areas around Lake Nabugabo will yield species like the Green Hylia (heard and seen during the survey in November 2016) and the Shinning Blue Kingfisher.

The sandy beaches around the lakes provide suitable roosting sites for the non breeding Palearctic waders like Sandpipers, Stilts, Greenshanks, Stints and others that spend their winter in Uganda. A boat ride on the open water on Lake Nabugabo from Kaziru Landing Site will encounter large colonies of White-winged Terns and Cormorants perching or roosting on shrubs or tree stumps floating in water. Birds usually migrate to this site between May-September and return to their homelands between late September-Early October.



*Greater cormorant;*



*Shoe bill (Balaeniceps rex ) one of the vulnerable bird species in Nabugabo*

## 2.7. REPTILES AND AMPHIBIANS (HERPETOFAUNA)

Ecologically, amphibians are important; they are mostly predators, acting as primary and secondary carnivores. Their prey consists mostly of insects, some of which are pests to crops or disease vectors. They are also inter-linked in food chains, often acting as food for other vertebrates, such as birds, snakes and sometimes man. Reptiles are important in nature. They are important predators within the food webs of their habitats. As such, they help keep animals that humans regard as pests under control.

Twenty seven (27) amphibian species belonging to only one order – Anura, nine families and 12 genera have been recorded and this is about 40% of the Ugandan diversity. The commonest amphibian species are *Hyperolius kivuensis*, *Ptychadena mascareniensis*, *Hoplobatrachus occipitalis*, *Amietophrynus vittatus*, *Hyperolius cinnamomeoventris Ptychadena porosissima* and *Amietophrynus regularis*. The rarest species were *Amnirana galamensis*, *Phlyctimatis verrucosus*, *Amietophrynus gutturalis*, *Amnirana albolabris*, *Hyperolius langi*, *Leptopelis* sp and *Ptychadena chrysogaster*. (Behangana and Arusi 2004, Behangana and Luiselli, 2008),

Twenty four (24) reptilian species belonging to three orders – Chelonii, Sauria and Serpentes, 11 families and 16 genera were recorded during the surveys. Earlier surveys put the diversity of the area to 19 species. The combined surveys bring the diversity of the area to 29 species, about 16% the reptilian diversity of Uganda. The commonest reptile species were *Naja melanoleuca, Trachylepis maculilabris, Python sebae, Varanus niloticus* and *Trachylepis striata*. The rarest species were *Boothropthalmus lineatus, Philopthalmus heterolepidotus, Psammophis sibilans* and *Psammophis mossambicus*, (Behangana and Arusi 2004, Behangana and Luiselli, 2008),



*Hyperolius viridiflavus variabilis*



*Pelusios williamsi - Williams' mud turtle specimen from N2 Micuncu village, Katonga Wetland system hooked by a fisherman when fishing. The fisherman was taking it home for a meal.*



*Bitis arietans – Puff Adder*



*Varanus niloticus*

# CHAPTER THREE; PEOPLE, CULTURE AND LIVELIHOODS IN LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE.

## 3.1. POPULATION DYNAMICS

The total human population is about 475,967 (Uganda Bureau of Statistics, 2014) and of these 240,255 are females while 235,712 are males (Female: Male ratio is about 1: 1.02). Population growth varies in the five districts with Mpigi having the highest population growth at 2.44 % and Butambala the lowest at 1.22 %. The main ethnic group in the area is Baganda. However, due to migrants from other parts of Uganda and neighboring countries, the population is now cosmopolitan in nature comprising of Bakiga, Banyankole, Basoga, Banyarwanda, and Tanzanian ethnic groups. The main language of communication is Luganda. Other languages spoken in the area include Swahili for ethnic groups from Congo, Tanzania and Kenya while Runyakitara is used for ethnic groups from western Uganda. The cultural orientation in terms of food, dressing and music is influenced by the Kiganda culture. For instance, Luwombo is a delicacy to both Baganda and non-Baganda while gomesi, a traditional wear for Baganda women is now donned by the majority of women whether Baganda or not.

## 3.2 LIVELIHOOD ACTIVITIES

### 3.2.1 Introduction

Lake Nabugabo wetland system Ramsar site is rich in Natural Resources as reflected in chapter 2 and 3. It has fish, forest products like grass, timber and trees for firewood, abundant water, clay, sand, good soils, good climate and wildlife. People's livelihoods within the Ramsar site and beyond are dependent on exploiting these resources for food and income.

### 3.2.2. Fishing

Fish is one of the most important resources from Lake Nabugabo and the satellite lakes as a source of protein and income for the people. Fishing is the main economic activity for people around Lake Nabugabo and other small lakes. There are a variety of fish harvested from the lakes for consumption and for sale. The commonest fish are tilapia (Ngege), cat fish (Emmale), silver fish (Mukene) and Nile perch (Mputa). The fishing methods and equipment used vary according to the fish targeted. For instance the Mukene fish (silver fish) is harvested by light attraction. Light fishing is a relatively new process in Uganda. Kerosene pressure lamps are floated on water attracting the fish to the light. The Mukene that is attracted is fished out using scoop-nets and nets pulled from the shores. Mukene, being a small fish (grows to an average standard length of 48 mm), the nets used in fishing are meshes 3, 5 and 10 mm.

The value chain for fish is long and it varies with fish type; at every stage, there are employment opportunities. Fishing is mainly a man's activity while processing especially smoking or sun drying is a woman's activity. Marketing is done by both men and women. Over all, fishing and related activities sustain the livelihoods of many people.



*fishing canoes at lake nabugabo*



*fish catch at lake nabugabo*

### 3.2.3. Agriculture

Crop farming is the main activity that supplements fishing in the area. It is done on small holder farms where the main farming tool is the hand hoe. The main crops grown in the area are maize, beans, cassava and potatoes. However, there are attempts by a few individuals who have started large scale commercial production of maize and rice as well as commercial tree plantations.

### 3.2.4 Livestock

Rearing of cattle especially the local breeds is one of the livelihood options. Nabugabo area connects the eastern cattle corridor to the western cattle corridor and is quite important during the dry seasons since pastures rarely dry up. Therefore, in dry seasons cattle keepers from Tanzania, Kiruhura, Ssembabule, Gomba and Butambala bring their cattle for pasture and water. However, this movement of cattle from one area to another can lead to spread of diseases, conflicts, degradation of forests and lower milk production.

It is therefore not an appropriate method of animal husbandry and calls for provision of extension services and supporting the farmers to adopt better practices. As seen in the plate below, the animals move long distances and degrade the forests.



*cattle grazing in nabugabo*

### 3.2.5 Energy sources

The Lake Nabugabo wetland system Ramsar site is in a relatively rural setting with a low coverage of electricity like the rest of the country. In Uganda generally, electricity coverage is estimated at less than 9% and whereas electricity coverage in urban areas is at around 43%, it is at about 4% in rural areas. It is also estimated that about 0.4 % of the population has access to modern cooking fuel and 86% still rely on fuel wood for cooking. In this regard therefore, the majority of people depend on biomass energy in form of charcoal and firewood. While charcoal is produced from rural areas within the Ramsar site, the biggest percentage is sold to urban areas.

Excessive charcoal production using an inefficient process has led to destruction of forests; something that contributes to climate change. Despite the dangers caused by charcoal burning, biomass energy still remains the single cheapest source of energy and may not be completely eliminated. There are studies by UNDP which have come up with an efficient kiln for charcoal making that improves the charcoal value chain such that more charcoal is produced per cubic meter of wood burnt and the producer earns more money. If adopted, it can lead to improved incomes for the communities and lessen the destruction of forests. However, this may not also be sustainable in the long run but the best option is to promote cleaner energy options like solar, biogas and hydroelectricity.



*kerosine pressure lamps*

## 3.3 PEOPLE AND CULTURE IN NABUGABO

### 3.3.1. Heritage sites

The shores of the satellite lakes and forests are host to a number of cultural facilities that people regularly pay homage to especially those along the shores of Lake Birinzi and Nabugabo.



*A cultural site in nabugabo*



*A spiritual cultural site along the shores of lake birinzi*




*Left Women making clothes out of the bark cloth while to the right, a bark cloth tree being skinned*

## 3.3.2 The bark cloth

### Bark cloth is an ancient fabric of the Baganda

Bark cloth is an ancient fabric of the Baganda/Buganda kingdom. It is extracted from the bark of a fig (mutuba) tree (Ficus natalensis). The inner bark of the tree is harvested during the wet season in a meticulous process and beaten with different wooden mallets to give it a fine soft and brownish texture. Boys work under open sheds to protect the bark from drying out faster than expected. The mode of clothing differs from the common Baganda and their overall leader, the king who is termed the Kabaka. For kings and chiefs, the cloths are dyed white or black and worn in a different style to portray their unique powers and responsibilities. In modern times, the cloth is mainly worn at coronation and healing ceremonies not being exclusive of funeral ceremonies. With introduction of cotton growing and making of fabric from the cotton material, the bark cloth has been abandoned for everyday use and is now confined to various cultural functions in Buganda because it was found to be more durable and cleaner than the traditional fabric

## 3.3.3 Luwombo delicacy;

Both local and international delicacies are available in Nabugabo. Most popular is the luwombo meal, a local dish that can be eaten as lunch or supper; prepared with chicken, pork, beef or goat meat. Luwombo is a young banana leaf softened by placing over an open fire, usually ignited with dry banana leaves. The various items are then wrapped in the softened leaf and secured with a banana fibre, then steamed. This gives it a unique taste and aroma. Luwombo can be got in most restaurants and hotels in the area.




### 3.3.4 Birinzi Catholic Shrine (St. Charles Lwanga)

Although Namugongo is the biggest Uganda Martyrs' shrine where thousands of Christians from all over the world gather for pilgrimage in June every year, the birth places of the various martyrs have also been accorded respect. The defacto leader of the Catholic Martyrs, Charles Lwanga was born in this area and it is in his memory that Birinzi shrine was built in the Nabugabo area.



*An outside view of the St. Charles Lwanga shrine*

Birinzi Catholic shrine is located in Birinzi Village, Birinzi Parish in Mukungwe sub county Masaka District at Geographical coordinates (37465N, 997094E) south of the Equator. The church was constructed at the home of St. Charles Lwanga in 1967 in his memory. Lwanga was condemned to death on Thursday 3rd June 1886 because of his religion. The faithful, in their thousands, trek to the place every first Sunday of July to pray. Charles Lwanga is arguably the most famous and most influential of the Uganda Martyrs. According to Rev Fr Alipio Kyambadde from Sembabule District, in 1913, the church started to inquire on the lives of the Uganda martyrs as they were to be canonized and so they had to reach their natal residences.

The place had a Mvule tree (Milicia excelsa) which is said to have been at the backyard of Karoli's (Charles's) home. Many believers take parts of the tree saying it heals different diseases plus giving fortunes. According to one of the residents, the 'healing' tree survived up to 2006 when it fell. As a way of conserving it, Masaka Diocese Bishop John Baptist Kaggwa recommended that the saint's monument be curved from its wood. The monument was placed in Kitovu Cathedral which is the main church of the diocese.

### 3.3.5 Buganda traditional dances

African music is spiced with art form, such as poetry, ritual or dance, and it constitutes one of the most revealing forms of expression of the African life and soul. Music has a sense of rhythm. The Baganda, the dominant ethnic group in Nabugabo, combine dance and music to explain history and the social elements.

The Bakisimba is one of the traditional dances for the Baganda (Kisimba clan). This dance originated from the famous former Kabaka scandal which occurred at a party. It is said that the King at the party, drunk local beer called Tonto, a local wine made from ripe bananas of a specific variety. Apparently, the king was so happy said that he exclaimed "Bakisimba bebakiwoomya" which meant those who planted the bananas made it sweet. The musicians made a song out of it.The king then started to dance as the onlookers and dancers also followed him. This hence became a traditional dance for Buganda generations up-to date.

The Bakisimba dance is now considered one of the most common traditional Buganda dances that is performed on several occasions. During the dance, instruments such as trumpets made from cow horns, different drums known as Ngalabi and Mbuutu are used. The Kiganda culture has a close association with plants and animals, so they conserve the environment by not destroying plants and killing animals symbolic of their cultures especially the clans.



*The Baganda Bakasimba Traditional Dance*



# PART 2 ;
## LOOKING TO THE FUTURE



# CHAPTER FOUR: TOURISM IN LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE

## 4.1. INTRODUCTION

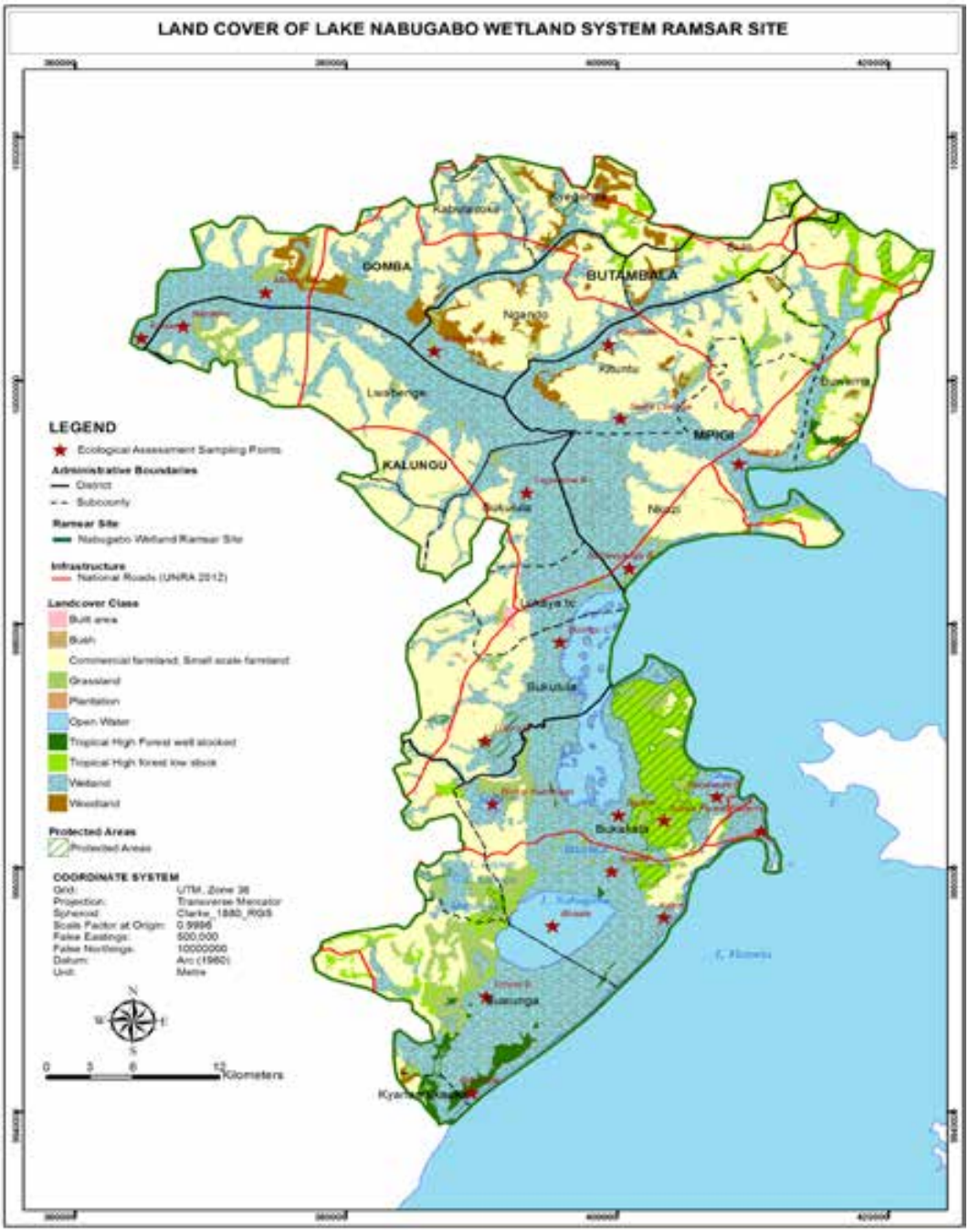
Tourism in Uganda is focused on Uganda's landscape and wildlife. According to the Ministry of Tourism, Wildlife and Antiquities, tourism is a major driver of employment, investment and foreign exchange. In the financial year 2012-2013, it contributed, 4.9 trillion Ugandan shillings (US$1.88 billion or €1.4 billion as of August 2013) to Uganda's Gross Domestic Product. The Ministry of Tourism, Wildlife and Antiquities is the Government Ministry charged with the responsibility to sustain tourism, wildlife and cultural heritage.

The Ministry is made up of a number of Departments which include: Tourism Development; Wildlife Conservation; Museum and Monuments; and Finance and Administration with affiliated Institutions which include; Uganda Wildlife Education Centre Trust, Uganda Tourist Board (UTB), Uganda Wildlife Training Institute, Hotel and Tourism Training Institute and Uganda Wildlife Authority (UWA). Tourism in Uganda is at a turning point with tremendous opportunities emerging and Uganda was recently named among the World's top tourists' destinations; a fact that Lake Nabugabo wetland system Ramsar site can tap into because of its different tourist attractions, services and activities.

## 4.2 LOCATION

One of the potential factors for tourism promotion in Lake Nabugabo wetland system is its location along the tourist circuit from Kampala en-route to Lake Mburo National Park and Bwindi Impenetrable Forest for Mountain Gorilla tracking. All the tourist attractions sites in Lake Nabugabo wetland system Ramsar site, activities and services are accessible from all the major towns in central Region namely: Kampala, Mpigi, Lukaya and Masaka. Lake Nabugabo and other satellite lakes are just 25 kilometers from Masaka. It is located on the road connecting Masaka and Kalangala (Ssese Islands).

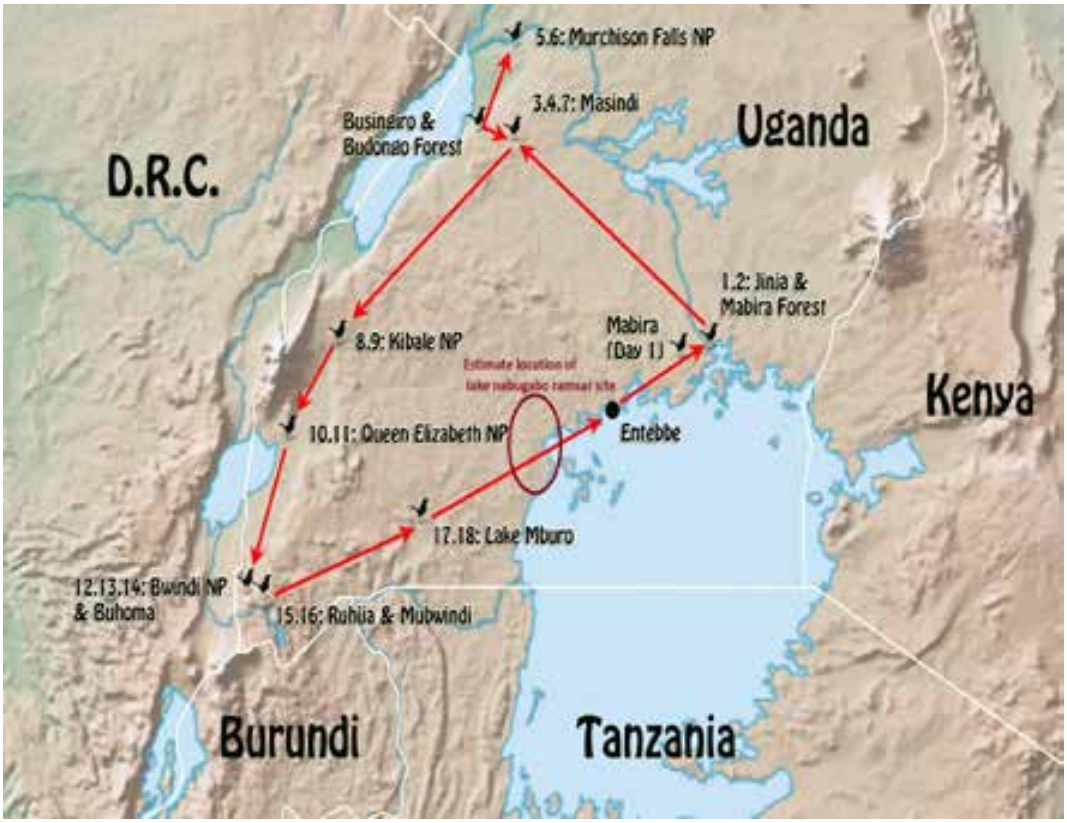



LAND COVER OF LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE
BOMBA
BUTAMBALA
KALUNGU
MPIGI
Ngando
Kitunta
Lwabenge
Nkozi
Bukulula
Bukakata
Kyamuntuka
LEGEND
Ecological Assessment Sampling Points
Administrative Boundaries
District
Subcounty
Ramsar Site
Nabugabo Wetland Ramsar Site
Infrastructure
National Roads (UNRA 2012)
Landcover Class
Built area
Bush
Commercial farmland, Small scale farmland
Grassland
Plantation
Open Water
Tropical High Forest well stocked
Tropical High forest low stock
Wetland
Woodland
Protected Areas
Protected Areas
COORDINATE SYSTEM
Grid: UTM, Zone 36
Projection: Transverse Mercator
Spheroid: Clarke_1880_RGS
Scale Factor at Origin: 0.9996
False Eastings: 500,000
False Northings: 10000000
Datum: Arc (1960)
Unit: Metre
N
S
E
W
0 3 6 12 Kilometers

## 4.3. HOW TO GET TO LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE.

Accessibility to the tourist attractions and facilities within the Ramsar site is easy due to the wide network of roads that connect from the Kampala-Masaka Highway. From Masaka town, Lake Town, Lake Nabugabo a core feature of the Ramsar site is about 30 kilometers from Masaka along Masaka-Bukakata-Kalangala road. From Mpigi, Buwama, Kayabwe and Lukaya, all along Kampala Masaka High way all the major features of Lake Nabugabo wetland system Ramsar site can be accessed. The most effective means of transport is therefore by road using a private vehicle or hired car.

Information on the location of the facilities is obtainable from a wide range of institutions ranging from Government Institutions like UTB, UWA, Wetlands Department, District Local Governments (Masaka, Kalungu, Mpigi, Gomba and Butambala) and organized communities like the Ramsar committee. Information on Lake Nabugabo Wetland system Ramsar site can also be down loaded from the websites of the institutions and some tour companies (See Annex 1)




*The connection of Lake Nabugabo Ramsar Site to other tourism destinations in Uganda*

## 4.4 TOURIST ATTRACTION SITES

The tourist attractions in Lake Nabugabo Wetland system Ramsar site are varied and nature based. These can be categorized as follows: Caves and other land forms, religious/cultural, craft shops wide spread along the road sides like at Kayabwe – one can view the Equator, beautiful scenery of the landscape, vegetation and satellite lakes, unique plants and animals and agro tourism like irrigation, cage farming, a crocodile farm, and rice growing. The details of flora fauna and other unique sites have been highlighted in Chapters 2, 3 and 4.

The tourism activities rotate around the nature-based sites and they include the following; bird watching, wildlife viewing and adventure activities like; hiking, nature walks, canoe/boat rides, beaches, swimming, camping, picnics, hiking, cycling, fishing, and Sports

## 4.5 TOURIST ACTIVITIES

### 4.5.1 Birding

Being a recreational activity, bird watching is an exciting field activity during trips to the Nabugabo wetland system Ramsar site. Bird watching, involves a significant auditory component, as many bird species are more easily detected and identified by ear than by eye. Most birdwatchers pursue this activity for recreational or social reasons, unlike ornithologists, who engage in the study of birds using formal scientific methods. Bird watching could be a highly lucrative activity once organized. In Uganda, birding competitions are organized to create environmental awareness, promote tourism and for leisure purposes. The birding competitions encourage individuals or teams, following specific criteria to identify as many species as possible within a specified time or area. The winning team is that which observes the largest number of species within that time.



*Blue swallow, an intra-african migrant wintering in Nabugabo wetlands*



*Figure 6: Tourists guided through a bird watching exercise around the Nabugabo lake tree canopies*

In addition to being a recreational activity, birding is also important for environmental education and monitoring of bird populations. In Nabugabo, birding activities are normally spearheaded by Nature Uganda, a local civil society conservation organization.

### International bird watching events

- World Migratory Birds' Day
- International Vulture Awareness Day

### National bird watching events

- African Birding expo in Uganda;
- Big Birding Day and ends with a big birding day festival where certificates of acknowledgement are handed to the participants.
- The birding events are organized by UTB in collaboration with partners namely; Nature Uganda, and UWA.
- The variety of habitats in the Lake Nabugabo wetland system Ramsar site results in a wide spectrum of fauna and flora including birds; both resident and migratory. It also harbours a number of unique species such as the Blue Swallow, Shoebill and Papyrus Gonolek.

### 4.5.2 .Swimming

A number of leisure facilities such as Nabugabo Sand Beach and Nabugabo Holiday Center have been established along the shores of Lake Nabugabo. The bilharzia-free waters coupled with absence of dangerous wildlife such as crocodiles and hippos have made the lake popular for swimming. The swimming can be performed on an individual basis or as a team sport activity. Competitive open water swimming is one of the most popular sports in the area. However, the relative shallowness of the lake should not be taken for granted and it is always prudent for inexperienced swimmers to be cautious.

### 4.5.3 .Picnicking and camping

A picnic is an excursion at which a meal is eaten outdoors. It can be by family or friends in a scenic landscape such as a park, beside a lake or with an interesting view and possibly at a public event. The scenic beauty of Nabugabo Ramsar site and the cool environment is extremely attractive. Picnics can be organized out in the hotel gardens and selected parts of the Ramsar site but most importantly, Lake Nabugabo, with its exotic plants as the cool breeze is the perfect place to spend a day in tranquility from the mixture of enriching nature, scenic wonders, culture and legends, and watching nature.




*Camping at Nabugabo (Picture sourced from Sand Beach brochure)*

The Ramsar site provides opportunities for setting up new leisure facilities. However, overcrowding and hence stressing one area should be avoided.

### 4.5.4 .Bicycle Tours and racing;

The major parts of the Ramsar site are located in rural setups of Kalungu, Gomba, Masaka, Mpigi and Butambala districts which are relatively flat plains with the majority of roads being feeder/ murra,. These roads are interconnected with majority leading to the major road of Kampala-Mbarara and are favorable for bike riding and/or racing with little interference from motorized traffic. It is important that one travels with a handheld Global Positioning System or GPS or similar device for navigation.

### 4.5.5 .Nature and village walks

Nabugabo is a destination for nature and village walks. Executed with aid of either a Google printed or electronic maps or local guides; visitors can take a stroll among the local communities, and search for various species. The surrounding conservation area can be explored on foot and trails can be set right from the areas of accommodation to areas of interest and forest reserves which harbor a diversity of species. Hiking can be done in several groups depending on preference.

### Village walk to caves

There are a number of caves that have cultural significance to some sections of the local people. People periodically visit these caves for spiritual cleansing. These caves have been given names according to the clans of Buganda and they include: Nakawoza cave located in a forest patch in Kasekero village of Bukakata. This is the only cave in Masaka known to have bats and belongs to the Kasimba (Genet) clan of Buganda Kingdom. The cave may seem scary on first sight, therefore visitors need accompaniment before entering it. Entry is preceded by certain rituals as a sign of respect to the spirits. For example,

shoes are removed about 10 meters before the entrance to the caves. At the entrance, 33 local African spears of different shapes are found positioned in a circular pattern and these belong to different spirits. Right from the roof of the entrance into the interior are thousands of bats collectively vocalizing to create an eerie sound far into the dark recess of the cave.

### Wabisunga Cave (Python)

This huge cave is located in Wabisunga village of Mukungwe Sub-county of Masaka district. The entrance faces eastwards and a huge python with its offspring may often be seen from about 10.00 am to 12.00 noon or to1.00 pm basking in the sun. These snakes are habituated and are used to human visits.

### Visit to Najungula cave

Located in Buwunga Sub-county in Masaka district (Coordinates; 0372140N,9957385E), the cave is surrounded by huge trees and belongs to the Mpologoma (Lion) clan of Baganda. Three local dogs can be noticed, a huge fire with individuals dancing and roasting wild meat to appease the spirits. Prayers to the spirits only begin when fire is lit and at that time even those who are not clan members can ask for fortunes.

### Admiring the unique plants and lush forests

Carnivorous plants are rare plant species but are abundant around Lake Nabugabo and Birinzi. They can be identified with the help of a guide. The forests and wetlands around the lakes are still intact. Walking through them can provide an opportunity to see birds, the rare Sitatunga, monkeys and some rare trees and plants, especially those with medicinal and cultural values.



### 4.5.6 SPORT fishing

It is a popular activity on Lake Victoria and if promoted, it can also be done in Lake Nabugabo.

### 4.5.7 Boat racing

Boat riding or canoeing can be an interesting activity if well promoted in Lake Nabugabo.

## 4.6 .HOTEL FACILITIES

Within the five districts, a variety of hotel facilities ranging from low to medium budget hotels can be found; these are located both near the Nabugabo Lake and within the major towns of the surrounding districts. To the western side around the lake Nabugabo are a cluster of accommodation facilities which are far away from the Masaka town noise, they are about 20 meters away from each other. These include, Terrace View Beach and Hotel, Nabugabo Sand Beach Hotel, Orchards Village Hotel and Nabugabo Holiday Centre. All these are situated in a conducive environment on the shores of Lake Nabugabo. Within the main Town of Masaka, there are Hotels like Brovad, Maria Flo, Zebra, and Golf Lane. The contacts for these facilities are available on the internet and directly contacting the Uganda Hotel Association (See annex 1)



## 4.9. TOURISM EDUCATION.

Rural poverty, environmental degradation, and the resultant threat to biodiversity hinder the social and economic development of Uganda. Tremendous potential exists in Uganda's rich natural and cultural heritage resources which can sustain tourism while providing a much needed local impetus to support the conservation of wildlife and natural areas. However, in Uganda tourism is considered a foreign practice due to poor attitude and low levels of knowledge and awareness. Nabugabo offers an opportunity for tourism education in a number of disciplines such as biogeography, botany, zoology and land use.



# CHAPTER FIVE: INVESTMENT OPPORTUNITIES IN LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE

## 5.1 INTRODUCTION

Lake Nabugabo Wetland system Ramsar site has diverse stakeholders, varied resources and multiple land use practices as reflected in the management plan (2017/2018 - 2026/2027). A Conservation Investment plan (CIP) was developed to support the delivery of the implementation framework laid out in the Lake Nabugabo Wetland System Ramsar Site Management Plan.

This was developed by means of a multi-stakeholder consultative process which brought together local and national government agencies, wetland communities, non-governmental and civil society organizations, the private sector, research and academic institutions who manage, depend and impact on Lake Nabugabo's lands and resources.

The activities laid out in the CIP contribute towards a common goal of sustainable management of Lake Nabugabo Ramsar Site for improved livelihoods at local, national and international levels. They are founded on the premise that the living environment should be treated as a valuable source of "natural capital" that drives development in Butambala, Gomba, Kalungu, Masaka and Mpigi Districts, Uganda and beyond.

Yet, in order to fulfil this role, biodiversity and ecosystems must be managed sustainably and used wisely. This means investing sufficient funds in their upkeep, maintenance and even improvement over time.

## 5.2 CIP INVESTMENT PACKAGES

Four investment packages have been identified which target the most pressing conservation needs in the Lake Nabugabo landscape and the most urgent shortfalls in existing financing flows. These seek to engage and support local actors to work together to secure environmental and economic benefits. The investment packages costing UGX 47.68 billion or USD 13.24 million over five years are:

### Investment package #1:

Strengthening environmental law enforcement and conservation. This investment package aims to safeguard key habitats, species and ecosystem services in the broader wetland landscape. It consists of five projects with a combined cost of UGX 9.39 billion or USD 2.61 million;

### Investment Package # 2:

Enhancing conservation information, awareness and capacity. This investment package aims to encourage, enable and empower more equitable and effective environmental conservation. It consists of four projects with a combined cost of UGX 6.89 billion or USD 1.92 million;

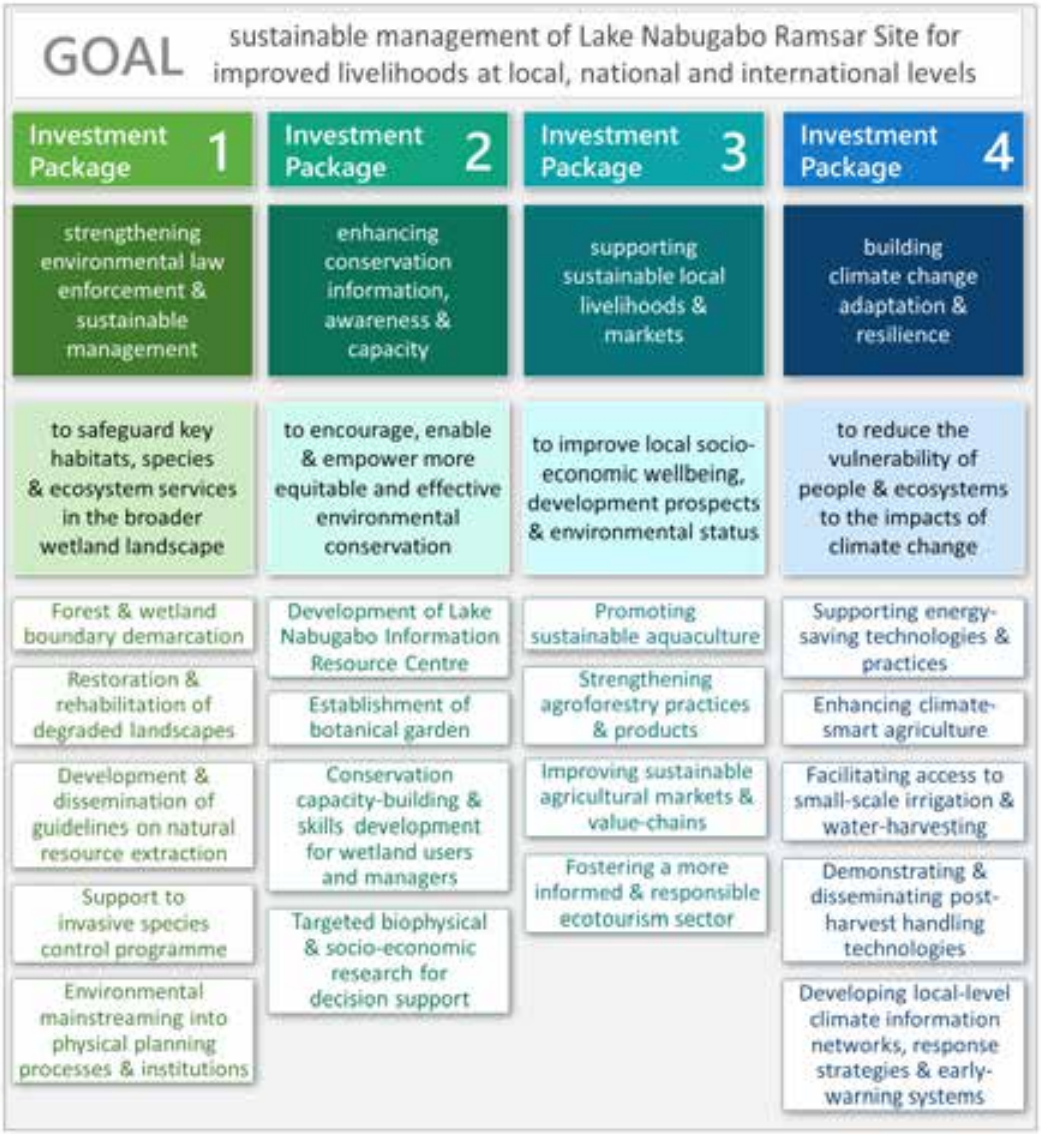
### Investment Package # 3:

Supporting sustainable local livelihoods and markets. This investment package aims to improve local socio-economic wellbeing, development prospects and environmental status. It consists of four projects with a combined cost of UGX 24.50 billion or USD 6.80 million; and

### Investment Package # 4;

Building climate change adaptation and resilience. This investment package aims to reduce the vulnerability of people & ecosystems to the impacts of climate change. It consists of five projects with a combined cost of UGX 6.90 billion or USD 1.91 million.

**Table 3: a summary of lake nabugabo wetland system ramsar site cip investment packages and activities**



## FURTHER READING;


Alfred van GEEST, A., & Coesel, P. (2012). Desmids from Lake Nabugabo (Uganda) and adjacent peat bogs. Fottea, 12(1), 95-110.

Anderson, Jay E, (1991). "A conceptual framework for evaluating and quantifying naturalness." Conservation biology 5.3 (1991): 347-352.

Behangana, M & L Luiselli (2008) Habitat niche community-level analysis of an amphibian assemblage at Lake Nabugabo, Uganda. Web Ecology 8: 125–134.

Behangana, M. & J. Arusi (2004) The distribution and diversity of amphibian fauna of Lake Nabugabo and surrounding areas. African J. Ecol: 42 (1): 6-13.

Behangana, M., R. Kityo & M. Mafabi (2005). The importance of Lake Nabugabo Ramsar site in the conservation of amphibian, reptilian and mammalian diversity. In Busulwa, H., P.G Mafabi & L.M. Ndawula (eds.). A compilation of scientific information on Nabugabo Ramsar Site, Uganda. JOSU Links, Kampala

Bergmans, W (1988). Taxonomy and biogeography of African Fruit bats (Mamalia, Megachiroptera). Beaufortia 38(5): 75-146

Busulwa H, Mafabi P.G & L.M. Ndawula (2005). Proceedings of the Scientific Conference for Lake Nabugabo Ramsar site (Proceedings of the scientific conference held at Nabugabo. Ministry of Water and Environment.

Byaruhanga A., Kasoma P., Pomeloy D. (2001). *Important Bird Areas in Uganda.* East Africa Natural History Society Kampala

Chapman, L., Chapman, C., Schofield, P., Olowo, J., Kaufman, L., Seehausen, O. and Ogutu-Ohwayo, R. (2003) Fish Faunal Resurgence in Lake Nabugabo, East Africa. Conservation Biology 17(2): 500-511.

Chapman, L.J., Chapman, C.A., P.J. Schofield, P.J., Olowo, J.P., Kaufman, L.S., Seehausen, O., and Ogutu-Ohwayo, R. (2003). Fish faunal resurgence in Lake Nabugabo, East Africa. Conservation Biology (volume 17 No.2).

Hamilton, A C (1992). History of forest and climate: 17-25. In: sayer et al (ed). The Conservation Atlas of tropical forests, Africa. Macmillan, United Kingdom.

Kalema, J., Namaganda, M., Bbosa, G. and Ogwal-Okeng, J. (2016). Diversity and status of carnivorous plants in Uganda: towards identification of sites most critical for their conservation. Biodiversity and Conservation, 25(11), pp. 2035-2053.

Kingdon,A C (1990). Island Africa. The evolution of Africa's rare animals and plants: 1-287. Collins, London.

Millennium Ecosystem Assessment (2005). Ecosystems and human well-being: wetlands and water synthesis. World Resources Institute, Washington, DC.

Ministry of Water and Environment (2016). Uganda Wetlands Atlas Vol. 2.

Nakirya, D., Okot-Okumum J., and Muyodi, F. J. (2015). Microbial safety assessment of recreation water at Lake Nabugabo, Uganda. African Journal of Environmental Science and Technology. Accepted on 17th Sept. 2015.

Namaganda M, (2005). Carnivorous plants of the Nabugabo Region: 103-108. In Busulwa et al 2005 (ed). A compilation of scientific information on Nabugabo Ramsar site, Uganda. JOSU Links, Kampala.

National Agricultural Research Organization (2015). Soil mapping Reports for the Central Region. Kampala-Uganda.

National wetland Programme (2005). Wetlands and the Law. Legislation governing the ownership, use and access to wetlands and their resources, Kampala.

Ogutu-Ohwayo, R. (2002). The Effects of Predation by Nile Perch, Lates niloticus L., on the Fish of Lake

Nabugabo, with Suggestions for Conservation of Endangered Endemic Cichlids. Conservation Biology, 7, pp. 701-711.

Rach, N.M. (1992). Tectonic Controls on the Lake Victoria Basin. Basement Tectonics, 7, pp. 219-226.

Republic of Uganda (1995). National Policy for the conservation and management of wetland resources. Ministry of Natural Resources, Uganda.

Republic of Uganda (1995). The Constitution of Uganda.

Republic of Uganda (2015). Summary of the economic value of biodiversity and ecosystem services in Lake Nabugabo Wetland Complex. Ministry of Water and Environment. Wetland Management Department.

Republic of Uganda (2017). The Lake Nabugabo wetlands system Ramsar site Management plan (2017-2027). Ministry of Water and Environment, Wetland Management Department, Uganda.

Republic of Uganda (2017. Lake Nabugabo wetlands system Ramsar site Conservation Investment Plan. Ministry of Water and Environment, Wetland Management Department, Uganda.

Uganda Bureau of Statistics (2014). Uganda Population and Housing Census (Provisional Results).

Uganda National Meteorological Authority (2016). National Weather Report 2016. Ministry of Water and Environment, Kampala.

USAID (2015). Summary of the economic value of biodiversity and ecosystem services in Lake Nabugabo Wetland Complex, Uganda. A study conducted by Lucy Emerton under Planning for Resilience in East Africa through Policy, Adaptation, Research and Economic Development (PREPARED) Programme.



## ANNEX 1: IMPORTANT CONTACTS.

| Name of Institution | Type of information | Location /Station | Contact Person | Tel. Contact/Email |
|---|---|---|---|---|
| Ministry of Water and Environment /Wetlands Management Department | General wetlands Management and specific information on Ramsar sites | P.O Box 20026, Kampala Luzira, Kampala | PS/Commissioner Wetlands | Tel +256 414509942 Email: mwe.go.ug; www.mwe.ug |
| Ministry of Tourism | All Information on Tourism | Rwenzori Towers 2nd Floor, Plot 6 Nakasero Road. Kampala, Uganda. P.O. Box 4241 Kampala; | Permanent secretary | Tel: +25641-4561-700 Email; info@tourism.go.ug |
| Uganda Tourism Board | Travel Advise, Tourism marketing, Tourism sector investment advise | P.O Box 7211, Plot 42, Windsor Cresent, Kololo, Kampala,Uganda | Executive Director | Tel: +256 414 342196/7 Email: utb@utb.go.ug www.visituganda.com |
| Uganda Hotel Owners' Association | Tourist attractions, activities and services | UHOA, BMK House, Plot 4-5 Nyabong Road, Wampewo Avenue P.O. Box 33772 Kampala, Uganda | Chairman | Tel: +256 (0) 414345601 Email: info@ugandahotelassociation.com www.ugandahotelsassociation.com |
| The Uganda Community Tourism Association | Tourist attractions activities and services | Kampala | Chairman | Tel: +256 772 657 700 |
| NatureUganda | Specific biodiversity information on Nabugabo | Plot 1, Katalima Crescent, Lower Naguru. P.O Box 27034, Kampala | Executive Director | Tel: +256 414 540719 Email: nature@natureuganda.org www.natureuganda.org |
| Uganda Tour Operators Association | Means of transport | 5th Street, Kampala, Uganda | Chairman | Tel: +256 702 542599 |
| Ministry of Local Government (MoLG) & Masaka, Kalungu, Mpigi, Gomba and Butambala District Local Governments | Tourist attractions | Masaka | RDC, CAO,LC5 CHAIRMAN, DEO | Tel: +256-414-341224 E-mail: ps@molg.go.ug /masakadistrictlocalgovernment@gmail.com |



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